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ABSTRACT

The purpose of this study was to discover the efficacy of the Science, Mathematics, and Related Technologies Quality Measurement (SMARTQM) as a measure of total school quality and to determine the usefulness of this instrument in predicting school performance through self-reported student achievement. SMARTQM is an integrated data collection and reporting system designed to determine how closely a school resembles the "ideal" school. It consists of 13 survey forms, site and classroom observation, and focus group discussions designed to obtain a complete picture of a school. Participants in the process include teachers, administrators, non-teaching staff, school-based councils, parents, students, previous students, and community members. A total of 17 schools participated in the pilot testing of the SMARTQM of which 15 were sufficiently complete for inclusion in the study. Schools were selected to fill slots in a sampling matrix. Schools were surveyed, visited by an evaluation team, and school community personnel participated in focus groups. The evaluation team independently scored the school on the SMARTQM characteristics. Appendices contain sample cover letter and surveys, site visit observation forms, and focus group questionnaire and procedures. (Author/MKR)

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ED 391 668

A School Quality Planning and Evaluation Tool

Science, Mathematics, and Related Technologies Quality Measurement SMARTQM

by Dr. Brian E. Daly

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A SCHOOL QUALITY PLANNING AND EVALUATION TOOL

Science, Mathematics, and Related Technologies Quality Measurement SMARTQM

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ABSTRACT

The purpose of this study was to discover the efficacy of the Science, Mathematics, and Related Technologies Quality Measurement (SMARTQM) as a measure of total school quality and to determine the usefulness of this instrument in predicting school performance through self-reported student achievement.

SMARTQM is an integrated data collection and reporting system designed to determine how closely a school resembles the "ideal" school. It consists of thirteen survey forms, site and classroom observation, and focus group discussions designed to obtain a complete picture of a school. Participants in the process include teachers, administrators, non-teaching staff, school-based councils, parents, students, previous students, and community members.

A total of 17 schools participated in the pilot testing of the SMARTQM of which 15 were sufficiently complete for inclusion in the study. Schools were selected to fill slots in a sampling matrix. Schools were surveyed, visited by an evaluation team, and school community personnel participated in focus groups. The evaluation team independently scored the school on the SMARTQM characteristics.

INTRODUCTION

The U.S. Department of Commerce recently announced a pilot program in education based on the Malcolm Baldrige Award. This program is in concert with efforts by educators at all levels to improve the performance of schools and, subsequently, students. The goal of the Malcolm Baldrige Award is to improve the systemic planning and delivery of services of educational institutions across the country.

Using Malcolm Baldrige software devised to evaluate the "quality" of American firms, a survey process to evaluate the quality of Kentucky schools was developed by the author while working for the Kentucky Council on Higher Education. The resulting software had problems inherent in materials developed for industry and not schools. In 1993, the

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author and Nancy Sherman of the evaluation office of the Kentucky Science and Technology Council, Inc. began development of a new instrument which would be more directly attuned to the realities and needs of education and would provide a unique evaluation tool for the state's systemic initiative funded by the National Science Foundation.

Partnership for Reform Initiatives in Science and Mathematics - PRISM

In September, 1992, a cooperative agreement was signed between the National Science Foundation and the Kentucky Department of Education establishing the "Partnership for Reform Initiatives in Science and Mathematics (PRISM)" under the State Systemic Initiatives Program. This joint venture builds upon the changes taking place through the Kentucky Education Reform Act (KERA) to focus specific attention and resources on science and mathematics. PRISM's goals are:

* All Kentucky students will have the background in science and mathematics necessary to live and work in an increasingly complex society.

* More Kentucky students, especially minorities, women, disabled and economically-disadvantaged persons, will choose to pursue science and mathematics-related careers.

* Kentucky citizens and leaders will recognize the importance of quality science and mathematics education to the state's economic competitiveness.

PRISM is a partnership effort among a large number of individuals and groups across Kentucky, representing both public and private sectors. The chief partners in this project are the Kentucky Science and Technology Council, Inc., the Kentucky Department of Education, and the state universities of Kentucky. Through coordinated activities, the Partnership for Reform Initiatives in Science and Mathematics is facilitating changes in the ways that science and mathematics are taught and learned in Kentucky schools.

SMARTQM

SMARTQM is an integrated data collection and reporting system designed to determine how closely a school resembles an "ideal" school. The underlying assumption is that excellence in science, mathematics, and related technologies can be recognized and that schools can be compared against a vision of the ideal. Although no school will have all the attributes of an "ideal" school, many will have components which exemplify excellence. Essentially, the SMARTQM is a strategic planning process using the format of the Malcolm Baldrige National Quality Award, the structure of Total Quality Management, and the results of exemplary schools research.

SMARTQM consists of thirteen survey forms, school and classroom observation, and focus group discussions designed to obtain a picture of the entire school. Participants in the process include teachers, administrators, non-teaching staff, school-based council members, parents, students, previous students, and, optionally, community members. Specific attention is given to the performance of the school in science and mathematics. Classroom observation and four of the survey forms are specifically targeted toward science and mathematics. In addition, a section of the Previous Student Survey is tied directly to the science and mathematics outcomes identified in ***Transformations: Kentucky's Curriculum Framework***. Finally, nine of the survey forms allow the school to design and include statements which target specific concerns or areas of interest.

After the site visit, participating schools receive a written report which provides scores on fourteen criteria: the seven Malcolm Baldrige Award criteria and seven SMARTQM Exemplary School Processes. In addition, specific questions from the surveys are highlighted to give the school some direct feedback on what students, faculty, parents, and graduates think about the school. The data from this report are used to generate practical suggestions on what can be done to improve the school's operation and overall effectiveness. Specific categories of the SMARTQM Report are defined below.

A. Malcolm Baldrige Award Criteria

Leadership (95 points) -The school provides the necessary support and focus to accomplish the goals of a quality school.

Information and Analysis (75 points) - The school has clearly defined methods to systematically look at how its systems are functioning.

Strategic Quality Planning (60 points) - The school has a system of planning which involves the appropriate groups, focuses on short and long-term objectives, and stresses continual improvement.

Human Resource Utilization (150 points) - The school hires, develops, involves, empowers and recognizes quality personnel.

Quality Assurance of Students and Services (140 points) - The school has a definition of quality student outcomes and quality services for students, continually strives for consumer satisfaction, and has a system for evaluating its students and services.

Quality Results (180 points) - The school maintains measures of quality which compare it with the very best schools.

Customer Satisfaction (300 points) - The school has a defined process to study, utilize, and evaluate feedback from its different constituencies.

B. SMARTQM Exemplary School Processes

Curriculum and Standards - An operational plan for instruction reflecting value judgments that enumerate what students need to know; how students are to achieve curricular goals; what teachers do to help students develop; and the context in which learning and teaching occur.

Teaching - Actions by teachers which enable students to meet and exceed identified curricular goals.

Relationships - Personal interactions which provide support, encourage achievement, enrich the curriculum, and strengthen the teaching/learning process.

Self and Professional Development - Teachers and staff actively seek, and the school provides, access to educational activities and opportunities which facilitate and increase achievement of curricular goals.

Use of Resources and Personnel - The active and imaginative use of persons, places, and materials which facilitate and increase achievement of curricular goals.

Empowerment - An active, personal commitment to assuming and sharing responsibility.

Equity - An active recognition and valuing of individual uniqueness, which accepts no artificial barriers to realizing potential.

C. SMARTQM - Other Highlights

Student Perceptions - Attitudes toward school, learning, teachers, safety, and personal abilities.

Faculty/Staff Perceptions - Attitudes toward the school, learning, students, parents, commitment to quality, professional development, and the work environment.

Graduate (Previous Student) Perceptions - Attitudes toward preparation for the next educational level; self-reported performance in writing, history, mathematics, and science; and ratings of the former school and teachers.

The information is graphically presented in a series of bar charts. Comparisons between how the different groups perceive the school are portrayed. Recommendations by the PRISM team are included.

SMARTQM - Sample Report Format

TABLE 1 - Quality Indicators

Indicator	Teachers	Students	Graduates	Parents	Overall
Leadership	3.0	3.3	3.0	2.9	3.1
Information & Analysis	3.2	3.1	3.0	2.1	3.0
Quality Planning	3.1	2.3		1.8	2.9
Human Resources	2.8	3.3			2.9
Quality Assurance	2.8		2.9	2.3	2.8
Quality Results	2.8	2.8	2.8	3.2	2.9
Client Satisfaction	2.8	2.9	2.9	3.4	2.9

The Malcolm Baldrige Award Criteria give a weight to the different indicators with a possible perfect score of 1,000. **This school scored 728 points. The Science & Mathematics component scored 670 points.**
Parents believe that:

A similar table is presented for SMARTQM Process Scores.

- innovative education can improve their child's education (84 percent);
- their child is happy in school (89 percent);
- their child enjoys learning (91 percent);

Some **general recommendations** based on this analysis include the following:

Data summaries and bar graphs are shown for teachers, students, and graduates.

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1. Parents need to be recruited and involved in school planning. This could be done by running small invitational focus groups at convenient times. The purpose of these groups would be to provide parents with information about how reform is working in their school and to gather their ideas about how the school can do a better job. This process will open communication channels and encourage greater understanding. --- ***ET CETERA***---

ASSESSMENT INSTRUMENTS
SURVEY FORMS

The first component of SMARTQM consists of thirteen survey forms and involves participation by teachers, administrators, school-based councils, non-teaching staff, students, parents, previous students, and community members. Distribution of the forms is as follows:

SURVEY NUMBER & TITLE	TARGET AUDIENCE
1 - Teacher Self-Assessment	All Teachers
2 - School Administration Survey -Teachers	All Teachers
3 - Science Component Survey	Science Teachers
4 - Mathematics Component Survey	Math Teachers
5 - School Environment Survey	Administrators Teachers Staff Volunteers
6 - Administration Survey	Administrators School-Based Council Members Teachers in Administrative Roles
7 - School Administration Survey - Staff	Non-Teaching & Support Staff
8 - Student Survey	Students - Grades 3 and Higher
9 - Student Science Survey	Science Students
10 - Student Math Survey	Math Students
11 - Previous Student Survey	Previous Spring Graduates
12 - Parent Survey	Parents
13 - Community Survey	Business & Community Leaders

SMARTQM - SURVEYS

Introduction

Each of the surveys consists of statements which require an agreement rating from low to high. For most questions, respondents are directed to choose one best response. On several forms, additional demographic or open-ended questions are asked. Open-ended questions are designed to provide the school with some immediate feedback and, usually, the data from these questions will not be included in the SMARTQM Report.

Nine of the surveys include space for additional questions to address specific concerns or interests of the school. Response patterns to these questions will be included in the SMARTQM Report if the school provides copies of the questions to the PRISM team. If the school decides not to use this portion of the survey, this section of the answer sheet should remain blank. Distribution of the surveys differs for each questionnaire. A sample cover letter, directions for completing a survey, and sample surveys are found in Appendix A.

SMARTQM - SITE AND CLASSROOM OBSERVATIONS

The second component of SMARTQM consists of site and classroom observations. Scheduled visits to science and mathematics classes provide an opportunity for direct observation of school characteristics as well as teacher and student behaviors. Library and computer facilities and materials are included in the site observation. A copy of the classroom and the facility observation forms are attached as Appendix B.

SMARTQM - FOCUS GROUPS

The third component of SMARTQM consists of focus group data from faculty and staff members, students, and, optionally, parents and community members. Members of the focus groups discuss and prioritize the characteristics of the ideal school, and identify the characteristics of their own school.

Focus group data are used to verify and supplement data gathered through the survey process. Normally, the PRISM team will conduct student and teacher focus groups during their visit to the school. When possible, parent and/or community focus groups can be conducted by the PRISM team. Due to scheduling difficulties, these parent and community focus groups may be more effectively conducted by school personnel using the SMARTQM structure. Results of the discussions could then be used by the school for local planning activities.

RESEARCH DESIGN

Sample: The sample for this study consists of 13 public and 2 private schools geographically distributed across the state of Kentucky representing different socio-economic strata, population densities, ethnic compositions, and involvement in the statewide systemic initiative funded by the National Science Foundation. Private schools were selected because no mandates exist for them to initiate education reform.

The various surveys which make up the SMARTQM are directed to specific audiences at each school. The n's for the various subgroups is as follows:

Teachers	322
Science Teachers	144
Mathematics Teachers	157
Students	1183
Non-Education Support Staff	115
Administrators & Council Members	94
Graduates & Previous Students	572
Parents	817
Community Members	112

In addition, an approximate total of 300 students and 300 teachers participated in focus groups.

Procedures: Surveys were compiled for each school to form a matrix of characteristics. Using a judgement analysis process, questions were categorized into the 14 criteria (7 Malcolm Baldrige and 7 SMARTQM Indicators) and scores were calculated based on these groupings. Seven groupings were partially derived from previously defined Malcolm Baldrige question groups.

An independent rating of each school on the 14 criteria was done by each of the team members. These independent ratings were then combined to arrive at a consensus score for each school.

The consensus score and the SMARTQM generated mean were then compared using Pearson Product Moment Correlation and a simple T-Test. The consensus score was also compared with the graduate generated self-assessment of performance at the next level institution.

Each school was given an overall score on the Malcolm Baldrige criteria based on the different point values for each criterion. School scores ranged from 622 to 812 on a 1,000 point scale. These scores were then compared with student self-reported success at the next level of education. A Pearson product moment correlation was run to determine the strength of relationships.

RESULTS

The 14 criteria of the SMARTQM showed a weak relationship with the 14 consensus scores. Pearson correlations ranged from a low of zero with a high of .84 to a low of .07. The mean correlation for the set was .40.

The Cronbach's Alpha demonstrated survey item reliability from a low of .90 to a high of .96. The mean alpha for the 13 surveys was .93 while the mean inter-item correlation was .30.

A Pearson product moment correlation between students self-reported scores and their subsequent performance at the next higher level school showed that self reported student performance at the next level and school Malcolm Baldrige overall scores are not directly related.

Discussion: The results of the initial analysis point out three important factors:

1. The inter-rater reliability was poor. The team members did not have consistent ratings on the 14 evaluation items either internally nor externally. Their consensus scores were significantly different from all the SMARTQM process indicator scores and similar to only three of the Malcolm Baldrige scores. The results leave a significant question about the validity of the data.

2. The reliability of the surveys was high. Alpha reliabilities were above .90 with reasonably low inter-item correlations.

3. The use of this instrument to predict the performance of students is not supported by the data. The instrument is designed to measure school factors and self-reported student scores are too individualized. This same analysis against independent statewide scores may also reflect a lack of concurrence. The type of changes measured by the SMARTQM are based on long-term goals. Institutions which apply quality leadership may demonstrate student gains in future years but the relationship is probably a weak one.

Ramifications: The instrument in its current configuration is limited to specific applications. The validity question must be determined before extensive use of the instrument as a measure of quality implementation is possible. Although valuable data were made available through the extensive survey process, the 14 indicator scores are suspect. The focus group data provided planners with important feedback concerning needs.

One major challenge is to improve the inter-rater reliability. Training of team members in the 14 criteria through better definitions and practice sessions needs to be

conducted. Although the current process may offer a positive indicator of a school's strengths and weaknesses, until a reliable cross-measure is developed, the validity of the instrument remains in question.

Interestingly factor analysis seems to support at least ten of the fourteen indicators. Further analyses in this area will strengthen the internal validity of the instrument. Better rating training will provide a better check on external validity.

Conclusions: The SMARTQM provides a unique view of schools. It offers survey data which individually can help a school plan effective for education reform. Its true strength, however, will emerge when it can be used to report derived scores which point to specific areas needing attention. The current version needs to be better refined before any broader use is undertaken.

APPENDIX A

SAMPLE COVER LETTER & SURVEYS

To: All Teachers
From:
Date:
Re: SMARTQM Teacher Self-Assessment Survey

Our school is participating in a quality analysis called the Science, Mathematics and Related Technologies Quality Measurement (SMARTQM) and I need your help. Please complete the attached survey. You are asked to determine, on a scale from low to high, how closely each statement describes your attitudes and/or behaviors. Please use a pencil to fill the center of the appropriate circle.

The results of this assessment will provide valuable information about our school. Your completed survey is confidential and only a summary report will be provided. Please be candid in your responses. Thanks for your help.

Please return your completed form to the SMARTQM collection point in the school office.

There are spaces on the form for several additional items of special interest to the school. Statements for items 35-38 can be found below. Please use the same low to high scale to complete this part of the survey.

35.

36.

37.

38.

THANK YOU

1

PARTNERSHIP for REFORM INITIATIVES in SCIENCE & MATHEMATICS (PRISM)

SMARTQM Teacher Self-Assessment Survey

The following are statements about teaching at your school. Decide how strongly you agree with each, select one response, and fill the center of the appropriate circle. *Please use a pencil.*

SCHOOL:

AGREEMENT SCALE: Low to High

	LOW → HIGH
1. I have a clearly defined focus for each instructional session.	
2. I reflect the belief that all students can learn and achieve success in my classes.	
3. I exhibit enthusiasm for the subject.	
4. I build instruction on what students learned earlier.	
5. I move instruction from concrete examples to abstract concepts.	
6. I provide supervised practice of important skills.	
7. I regularly monitor student learning in class.	
8. I establish a pattern of success and achievement for each student.	
9. I encourage students to explain the process used to arrive at an answer.	
10. I regularly provide specific feedback to students in class.	
11. I use a variety of assessment measures and techniques.	
12. I use activities which require solving non-routine problems from everyday life.	
13. I require students to express ideas through written assignments.	
14. I group students into heterogeneous study or activity teams.	
15. I use models, simulations, and games regularly to teach concepts.	
16. I insist that students collect and use evidence.	
17. I feel comfortable using a computer.	
18. I evaluate, select, and integrate computers and technology into the subject area.	
19. I individualize instruction to match student learning styles and abilities.	
20. I have good rapport with the other teachers in my school.	
21. My colleagues and I meet to discuss how to handle problems with students.	
22. My colleagues and I share ideas on different effective teaching approaches.	
23. My colleagues and I cooperatively organize teaching to be mutually supportive	
24. I upgrade my content knowledge through reading professional literature.	
25. I am an active member of a content area professional association.	
26. I upgrade my teaching abilities through professional development activities.	
27. I am an active member of an education professional association.	
28. I use or serve as a peer coach to assist teachers.	
29. I take an active role in curriculum development.	
30. I observe the classes of my colleagues.	
31. My colleagues and I conduct research on teaching and learning.	
32. I provide ideas to my superiors on how to improve my school.	
33. I feel my school has a true commitment to improving its quality.	
34. All things considered, students receive the best possible education at this school.	
35	
36	
37	
38	

39. Specialty Area(s) ○ Language Arts ○ Social Studies ○ Math ○ Science ○ Others

9

PARTNERSHIP for REFORM INITIATIVES in SCIENCE & MATHEMATICS (PRISM)

SMARTQM Student Science Survey

The following are statements about science at your school. Decide how strongly you agree with each item, select one response, and fill the center of the appropriate circle. There are no right or wrong answers. *Please use a pencil.*

SCHOOL:

AGREEMENT SCALE: Low to High

	LOW → HIGH
1. My teachers tell me science is important.	
2. My parents tell me that science is important.	
3. My teachers tell me I can do well in science.	
4. My parents tell me I can do well in science.	
5. It is important for me to know how to use science.	
6. I would like to spend more time on science.	
7. Science is often fun.	
8. My teacher enjoys science.	
9. I know I can do well in science.	
10. I could work successfully on harder science problems.	
11. I enjoy solving problems using science.	
12. There is more than one way to solve many science problems.	
13. I would enjoy being in a science team competition.	
14. I like to play science games.	
15. I use a calculator in science class.	
16. I use a computer in science class.	
17. I enjoy using a calculator or computer for science.	
18. My science skills help me learn other subjects more easily.	
19. There is a connection between science and other subjects.	
20. We do science experiments in our class.	
21. My parents ask about my science class.	
22. My teacher uses many different ways to teach science.	
23. My teacher asks me to explain how I solve science problems.	
24. My teacher uses "real life" examples to teach science.	
25. My teacher uses models and displays to explain science.	
26. My teacher helps me know my strengths and weaknesses in science.	
27. Science is one of my favorite subjects.	
SPECIAL QUESTIONS	
28.	
29.	
30.	
31.	
32.	

33. RACE

- African-Amer. (Black)
- Caucasian (White)
- Other Race

34. GENDER

- Female
- Male

35. CURRENT GRADE

- K-3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

OVERALL RATING

36. Science Teacher

HIGH ↑ LOW

37. Previous Science Teachers

HIGH ↑ LOW

38. Other Current Teachers

HIGH ↑ LOW

What suggestions do you have to improve the teaching of science?

11a PARTNERSHIP for REFORM INITIATIVES in SCIENCE & MATHEMATICS (PRISM)

SMARTQM Previous Student Survey - Middle School

The following are statements about your former school. Decide how strongly you agree with each item, select one response, and fill the center of the appropriate circle. There are no right or wrong answers. *Please use a pencil.*

PREVIOUS SCHOOL:

AGREEMENT SCALE: Low to High

	LOW → HIGH
1. I feel my former school prepared me well for my current school.	
2. I would recommend my former school to a younger friend.	
3. I like my former school.	
4. I like my current school.	
5. My current school is more difficult.	
6. I have good language arts skills (reading, writing, and grammar).	
7. I am currently doing well (A or B) in my English class.	
8. I am well-prepared in math.	
9. I am currently doing well (A or B) in math.	
10. I am well-prepared in history and social studies.	
11. I am doing well (A or B) in history/social studies.	
12. I am well-prepared in science.	
13. I am currently doing well (A or B) in science.	
14. I find it easy to speak in front of the class.	
15. I know how to conduct an experiment.	
16. I find it easy to work in a small group on school work.	
17. Teachers at my former school told me I could do well in my classes.	
18. There was an adult at my former school with whom I could talk.	
19. I learned to use computers at my former school.	
20. Teachers at my former school used many ways to "test" my knowledge.	
21. I liked using the library at my former school.	
22. I think my former school treated all students fairly.	

How well do you think you would do in each of the following tasks?	LOW → HIGH
23. Develop a chart to show the things you like and dislike in a book.	
24. Listen to a speaker and pick out weaknesses in his/her arguments.	
25. Invent a system to feed and water a pet while a family is away on vacation.	
26. Design a survey, collect, analyze, and graph data; report the results.	
27. Use blocks to demonstrate fractions and decimals.	
28. Return a defective tape recorder to a store.	
29. View a scene in a movie and describe appropriate and inappropriate behaviors.	
30. Tell which persons are most scared in a dentist's waiting room.	
31. Observe people at a local store and record their non-verbal behavior.	
32. Design a print advertisement for your favorite song.	
33. Design and test a container in which to ship a fragile glass statue.	
34. Interview persons who were affected by unfair labor practices & report results.	
35. Invent a video game which shows how attitudes have changed since 1900.	
36. Communicate by computer with a person in another school.	

What one thing would you change about your former school?

37. RACE
- African Am. (BLACK)
- Caucasian (White)
- Other Race

38. GENDER
- Female
- Male

39. Number of Years at Former School
- 1
- 2
- 3
- 4
- 5
- 6+

OVERALL RATINGS

40. Former School
- High
- Low

41. Former Teachers
- High
- Low

42. Former Facility
- High
- Low

APPENDIX B

SITE VISIT OBSERVATION FORMS

KENTUCKY PRISM - Teacher Observation Checklist

Teacher: Class: Grade Level:

INDICATE WHICH OF THE FOLLOWING ITEMS YOU OBSERVED

Physical Environment

1. Seating arranged in rows.
2. Seating arranged in clusters.
3. Seating in semi-circles or other arrangement.
4. Adequate & appropriate space for activities.
5. Adequate books and materials available.
6. Student work displayed in room.
7. Different natural or artistic models displayed.
8. Displays show multi-cultural modern usage.
9. Materials display ethnic/gender diversity.
10. Adequate, secure storage for materials.
11. Library has sufficient support materials.
12. Appropriate computing resources available.

Teacher Behaviors

13. Clearly defined focus for the session.
14. Reflects the belief that all students can learn and achieve success in the subject.
15. Encourages student to explain the process used to arrive at an answer.
16. Builds instruction on earlier learning.
17. Moves instruction from abstract to concrete.
18. Provides supervised practice of skills.
19. Integrates computers and technology into the subject area.
20. Gives individual attention to students.
21. Monitors student learning in class.
22. Individualizes instruction to fit student(s).
23. Exhibits enthusiasm for the subject.
24. Provides specific feedback to students.
25. Uses a variety of assessment techniques.
26. Uses activities which require solving non-routine problems from everyday life.
27. Requires students to express ideas through writing assignments.
28. Groups students into small learning teams.
29. Uses games/simulations to teach concepts.
30. Has students collect and use evidence.
31. Involves all race and gender students in class discussions and activities.
32. Exhibits good safety practices.

Student Behaviors

33. Building and/or discussing models.
34. Measuring or estimating.
35. Working with physical models.
36. Gathering and interpreting data.
37. Making or reading graphs.
38. Figuring out learning games.
39. Debating and discussing ideas.
40. Explaining or showing others.
41. Asking questions.
42. Drawing diagrams or graphs.
43. Writing about results.
44. Using calculators.
45. Using computers.
46. Working collaboratively in a team.
47. Exhibiting enthusiasm for subject.
48. Relating the topic to the real world.
49. Accepting ethnic/gender diversity.
50. Focusing on learning tasks.

OBSERVER SUGGESTIONS & COMMENTS

Strengths:

Weaknesses:

1 10

KENTUCKY PRISM - Library & Technology Checklist

School: **Date:**

ENVIRONMENT

1. Inviting appearance for patrons
2. Use of book displays
3. Area for individual study
4. Area for small group study
5. Accessible location
6. Sufficient space for two classes
7. Adequate physical access to collection
8. Adequate resource search capability
9. Furniture is appropriate
10. Access to external databases
11. Automated reference capability
12. Periodicals available for patrons
13. Accessible for physically challenged
14. Interlibrary loan capability

SERVICES

1. Reference help available
2. Facility open throughout school day
3. Facility open for extended school hours
4. Professional staff available
5. Clerical/technical support available
6. Library orientation for students
7. Library orientation for teachers
8. Library events regularly published
9. Scheduling service for facilities
10. Provides equipment setup support
11. Accessible catalog of AV materials
12. Maintain equipment status
13. Maintain library usage data
14. Maintain media usage data

PLANNING

1. Written goals and objectives
2. Maintain site budget for library
3. Plan for collection development
4. Plan for curriculum integration
5. Library media advisory committee
6. Collaboration with teachers
7. Student input sought
8. Parent input sought
9. Cooperative planning with other libraries

INSTRUCTIONAL SUPPORT

1. Accurate and current resources
   - Science Publications
   - Math Publications
2. Provide up-to-date technologies
3. Instructional production capability
4. Integration of information skills with curriculum
5. Library resources in performance assessment
6. Effective communication with teachers
7. Assist professional development of teachers
8. Provide current journals about teaching
9. Provide current math periodicals for teachers
10. Provide current science periodicals for teachers
11. Teacher involvement in collection selection
12. Develop teacher information access proficiency
13. A positive learning environment for students
14. Fast access to current information
15. Motivational activities to promote reading
16. Technology for student information access
17. Technology for production of student materials

SCHOOL COMPUTER RESOURCES

1. School catalog of computer software
2. 1 to 6 student / computer ratio
3. Updated student computer lab
4. Updated computers in science classrooms
5. Updated computers in math classrooms
6. Updated computers in other classrooms
7. Modem capability in computer lab
8. Modem capability in classrooms
9. Computer training for faculty
10. Software choice assistance
11. Technology planning team active
12. Published technology plan
13. Budget specifically for computers
14. Computers used by M&S teachers
15. Students have individual computer time

COMMENTS

L 1 2 3 4 5 6 7 8 9 10
T 1 2 3 4 5 6 7 8 9 10

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APPENDIX C

FOCUS GROUP QUESTIONNAIRE & PROCEDURES

FOCUS GROUP AGENDA

Introduction

A. Divide the group into 2 to 4 teams (depending on the number of participants with 3-5 in a group)

B. Give each team a list of word cards (each word on a separate paper) for the four different components: Physical Facility; Curriculum; Teacher; and Student.

C. Provide the following verbal instructions:

1. The word cards I gave you list attributes of an ideal (school, curriculum, teacher, student). Think of other words which you think would describe this ideal and write them on the blank cards.

2. Which 5 of these attributes are most important? Which 5 are least important?

3. Which 5 of these attributes are best at this school? Which 5 are worst?

D. Have each team rotate through the other team's cards and make one change in each stack of cards if they feel it is needed.

E. Enter the data on the sheets, give 5 points for "high" words, 3 points for the "middle" words and 1 point for the "low" words. Subtract the actual from the ideal. (If there is time the focus group participants can help with this.)

F. Take the results from each different focus group and average the differences. Items of concern are those items with the greatest differences.

*SCHOOL:*_____

STUDENT DESCRIPTORS

IDEAL	DESCRIPTOR	ACTUAL
	NICE - FRIENDLY	
	SMART	
	CREATIVE & INTERESTING	
	FAIR	
	RESPECTFUL	
	PATIENT	
	ORGANIZED	
	COOPERATIVE	
	HONEST	
	CONFIDENT	
	SENSE OF HUMOR	
	MOTIVATED	
	ADAPTIVE - WILLING TO TRY NEW THINGS	